

REMARKS

Claims 1-26 are pending in this application, with claims 6-10 and 19-24 currently withdrawn from consideration. Claims 1-5, 11-18, 25 and 26 are amended herein.

The drawings are objected to under 37 C.F.R. 1.83(a).

The Examiner indicates that the drawings do not illustrate the “second intermediate layer” of claims 16 and 17.

The objection is overcome by the proposed drawing correction, which adds new Figure 3. A corresponding specification amendment identifying the reference numerals in Figure 3 is also presented. The “second intermediate layer” is designated as reference numeral 4a.

Applicants assert that no new matter is made by these amendments. The second intermediate layer being laminated on the intermediate layer (and therefore being between the intermediate layer and the coating layer) is described in the specification on page 45, bottom paragraph.

Claims 1, 2 and 12 are objected to.

The Examiner objects to the claims because the term “lanthanoid” is used as if it were a single element. The objection is overcome by the amendments to claims 1, 2 and 12, in which the phrase “the lanthanoid elements” is recited as part of a Markush group of elements.

Claims 1-3, 5 and 26 are rejected under 35 U.S.C. 102(b) as anticipated by Ohta et al. (U.S. Pat. No. 5,571,636).

The rejection of claims 1-3, 5 and 26 is respectfully traversed.

In traversing the rejection, Applicants first note that claim 1 of the present invention recites a coating layer that is separate from the active material. On the other hand, Ohta et al. '636 discloses that an active material containing mainly nickel hydroxide (column 3, line 36) is present on a conductive support, which may be sintered nickel porous substrate. The invention may further have $\text{Sr}(\text{OH})_2$ adsorbed on the surface of the nickel hydroxide functioning as an active material (column 5, line 5).

In Ohta et al. '636, when strontium hydroxide is used it is mixed with the nickel hydroxide as an active material to make up the active layer (see Example 2, lines 61-65). Thus, strontium hydroxide particles are mixed in the active layer, ^{not in separate} inconsistent with the recitation of claim 1 requiring a separate coating layer.

Applicants also note that, since $\text{Sr}(\text{OH})_2$ is listed as one of fifteen possible compounds in column 3, lines 45-47, the general teaching of the "compound" in these lines of Ohta et al. '636 cannot be taken as a specific teaching of $\text{Sr}(\text{OH})_2$.

In addition, the invention of Ohta et al. '636 using an active material paste is not a sintered nickel electrode, and Ohta et al. '636 discusses problems of sintered nickel electrodes in columns 1 and 2. The amendments to the preambles of the claims, clarifying that the present invention includes a sintered nickel electrode, further distinguish the present invention from Ohta et al. '636.


Applicants therefore assert that claims 1-3, 5 and 26 are not anticipated by Ohta et al. '636.


Claims 1-3, 5, 11 and 26 are rejected under 35 U.S.C. 102(e) as anticipated by Yamamura et al. (U.S. Pat. No. 5,804,334).

The rejection of claims 1-3, 5, 11 and 26 is respectfully traversed.

The invention of Yamamura et al. is not a sintered nickel electrode, as recited in the present claims.

Specifically, Yamamura et al. does not appear to disclose a porous sintered nickel substrate.

 Yamamura discloses an invention in which a mixture of materials including the rare earth element or alkaline earth metal element is sintered to create a compound oxide (column 2, line 50); this would not create a sintered nickel substrate. Moreover, Yamamura appears to then state that a cathode mixture containing nickel hydroxide is then added to this sintered compound oxide (column 2, line 65). The nickel is clearly not in the sintered material. None of Yamamura's procedures in columns 3-4 appears to start with a sintered nickel substrate.

 Secondly, in Yamamura, the rare earth element or alkaline earth element is present in a "compound oxide" prepared by heating a mixture of compounds. Such a compound oxide would not have a separate coating layer formed on the surface of an active material. Clearly, there is no coating layer formed on a surface of an active material formed on a porous sintered nickel substrate, as recited in claim 1.

Applicants therefore assert that claims 1-3, 5 and 26 are not anticipated by Yamamura et al.

Claims 1-5, 11-18, 25 and 26 are rejected under 35 U.S.C. 102(e) as anticipated by Ohta et al. (U.S. Pat. No. 6,287,726 B1).

This rejection is respectfully traversed.

Applicants note that Ohta et al. '726 is not directed to sintered nickel electrodes. As in Ohta et al. '636, Ohta et al. '726 discusses sintered nickel electrodes and their drawbacks in the Background of the Invention section in column 1. Ohta et al. '726 does not use the word "sintered" in the Detailed Description section.

outside scope
Specifically, in Ohta et al. '726, a coating layer coats the nickel hydroxide particle, and is therefore not on the surface of an active material as required by claim 1. Moreover, there is no active material on a porous sintered nickel substrate as required by claim 1.

Applicants note that the Examiner states that "these elements are added to the active material while in alkaline solution, thus it is reasonably presumed that the hydroxide of these elements coats the active material", citing column 2, line 65 et seq. However, column 3, lines 4-9, in that cited portion indicate that the "active material particle" is the coated nickel hydroxide particle. That is, the coated nickel hydroxide particle is the active material. As the disclosed coating occurs only on the nickel hydroxide particle, the reference clearly does not disclose the invention recited in the present claims. *no*

Applicants therefore assert that claims 1-5, 11-18, 25 and 26 are not anticipated by Ohta et al. '726.

Amendment under 37 CFR 1.111
Mitsuzou NOGAMI et al.

U.S. Patent Application Serial No. 09/622,615
Attorney Docket No 000774

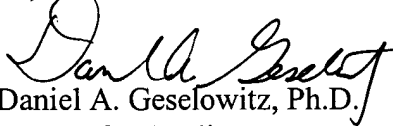
If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned Agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

Attached hereto is a marked-up version of the changes made by the current amendment. The attached page is captioned "Version with markings to show changes made."

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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PATENT TRADEMARK OFFICE

Enclosures: Version with markings to show changes made
Request for Approval of Drawing Corrections w/Fig. 3

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Please amend the paragraph beginning on page 44, line 4, as follows:

Subsequently, each sintered nickel substrate having the intermediate layer thus formed thereon was immersed in the aqueous solution of 5 wt% cobalt nitrate and then in a 25 % NaOH aqueous solution, after which the sintered nickel substrate wetted with the NaOH aqueous solution was heat-treated in the atmosphere at a temperature of 80°C for one hour, to form a second intermediate layer 4a composed of a hydroxide of cobalt on the above-mentioned intermediate layer 4 (see Fig. 3). After that, each nickel electrode for an alkaline storage battery was produced in the same manner as that in the above-mentioned examples D1 to D11.

Please amend the paragraph beginning on page 45, immediately below the table, as follows:

As apparent from the results, each of the alkaline storage batteries in the examples G1 to G7 employing the nickel electrode for an alkaline storage battery wherein the intermediate layer composed of hydroxide of calcium or the like was formed on the sintered nickel substrate, and the second intermediate layer 4a composed of the hydroxide of cobalt was then laminated on the intermediate layer 4 was further improved in the charge characteristics under high temperature conditions, as compared with each of the alkaline storage batteries in the examples F2 to F7 employing the nickel electrode for an alkaline storage battery wherein the intermediate layer composed of the mixture of the hydroxide of calcium or the like and the hydroxide of cobalt was formed.

IN THE CLAIMS:

Please amend claims 1-5, 11-18, 25 and 26, as follows:

1. (Amended) A sintered nickel electrode for an alkaline storage battery in which an active material mainly containing nickel hydroxide is applied to a porous sintered nickel substrate, characterized in that a coating layer containing at least one hydroxide of an element selected from ~~a~~ the group consisting of strontium Sr, scandium Sc, yttrium Y, the lanthanoid elements, and bismuth Bi is formed on a surface of the active material formed on the porous sintered nickel substrate.

2. (Amended) A sintered nickel electrode for an alkaline storage battery in which an active material mainly containing nickel hydroxide is applied to a porous sintered nickel substrate, characterized in that a coating layer containing cobalt together with at least one hydroxide of an element selected from ~~a~~ the group consisting of calcium Ca, strontium Sr, scandium Sc, yttrium Y, the lanthanoid elements, and bismuth Bi is formed on a surface of the active material formed on the porous sintered nickel substrate.

3. (Amended) The sintered nickel electrode for an alkaline storage battery according to claim 2, characterized in that said coating layer containing cobalt is heat-treated in the presence of alkali and oxygen.

4. (Amended) The sintered nickel electrode for an alkaline storage battery according to claim 1, characterized in that said lanthanoid is at least one element selected from the group consisting of lanthanum La, cerium Ce, praseodymium Pr, neodymium Nd, europium Eu, and ytterbium Yb.

5. (Amended) The sintered nicked electrode for an alkaline storage battery according to claim 1, characterized in that an amount of said hydroxide in the coating layer is in the range of 0.5 to 5 wt% based on the total amount of all the applied materials which includes the active material mainly containing nickel hydroxide.

11. (Amended) An alkaline storage battery characterized in that the sintered nickel electrode for an alkaline storage battery according to claim 1 is used as its positive electrode.

12. (Amended) A sintered nickel electrode for an alkaline storage battery in which an active material mainly containing nickel hydroxide is applied to a porous sintered nickel substrate, characterized in that an intermediate layer containing at least one hydroxide of an element selected from a the group consisting of calcium Ca, strontium Sr, scandium Sc, yttrium Y, the lanthanoid elements, and bismuth Bi is formed between the porous sintered nickel substrate and the active material.

13. (Amended) The sintered nickel electrode for an alkaline storage battery according to claim 12, characterized in that said intermediate layer is formed on surface of the porous sintered nickel substrate.

14. (Amended) The sintered nickel electrode for an alkaline storage battery according to claim 12, characterized in that said intermediate layer contains cobalt.

15. (Amended) The sintered nickel electrode for an alkaline storage battery according to claim 14, characterized in that said intermediate layer containing cobalt is heat-treated in the presence of alkali and oxygen.

16. (Amended) The sintered nickel electrode for an alkaline storage battery according to claim 12, characterized in that a second intermediate layer composed of cobalt hydroxide is formed on said intermediate layer.

17. (Amended) The sintered nickel electrode for an alkaline storage battery according to claim 16, characterized in that said second intermediate layer composed of cobalt hydroxide is heat-treated in the presence of alkali and oxygen.

18. (Amended) The sintered nickel electrode for an alkaline storage battery according to claim 12, characterized in that said lanthanoid is at least one element selected from the group consisting of lanthanum La, cerium Ce, praseodymium Pr, neodymium Nd, europium Eu, and ytterbium Yb.

Amendment under 37 CFR 1.111
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U.S. Patent Application Serial No. 09/622,615
Attorney Docket No 000774

25. (Amended) An alkaline storage battery characterized in that the sintered nickel electrode for an alkaline storage battery according to claim 12 is used as its positive electrode.

26. (Amended) An alkaline storage battery characterized in that the sintered nickel electrode for an alkaline storage battery according to claim 2 is used as its positive electrode.